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ENVIRONMENT AS A FACTOR IN FEEBLE-MINDEDNESS¹

THE NOLLY FAMILY

IRENE CASE AND KATE LEWIS

In 1915 there was brought to the notice of Dr. H. C. Stevens, of the Psychopathic Laboratory of the University of Chicago, a history of ten related families who had all applied to the Lower North District of the United Charities for aid. For over half a century these people had been living either wholly or in part on the city. They offer an interesting study in the effects of environment²

¹ From the Psychopathic Laboratory, University of Chicago.

² Owing to the present confusion of terms, it is thought necessary to make clear the use of the words "inheritance" and "environment" as used in this paper. By inheritance is meant organic resemblance between parent and offspring, which is due to the transmission of traits through the germ cells, in accordance with Mendel's law. This law presupposes: (1) that inherited traits depend upon "determinants" which are the causes of unit characters; (2) that certain unit characters are dominant and certain are recessive; (3) that the determinants are segregated in the germ cells. Prevailing biological opinion holds that these determinants are independent of environment, although the experiments of Tower and others seem difficult to reconcile to this view.

By environment is meant the sum total of external stimuli which act upon an organism. The doctrine of Weissmann, that the germ plasm is not influenced by the changes in the somatoplasm which are brought about by external stimuli, is still generally held. The experiments of Stockard upon the effect of chronic alcoholic intoxication of guinea pigs demonstrate conclusively that defective offspring result from this environmental factor. Are these defective offspring the result of environment or inheritance? According to the usual conception of the meaning of these terms, they are due neither to the one nor to the other. It is not inheritance, because there is no organic resemblance between parent and offspring, and furthermore because the result is not according to Mendel's law. It is not environment, for the reason that the stimulus (alcohol) did not act upon the organism which showed the defect, but upon one or the other of the germ cells of the parents which gave birth to the defective offspring. We need, therefore, to distinguish from Mendelian inheritance those cases of defective offspring which result from the action of environmental factors, acting upon the somatoplasm of the parents and indirectly upon their germ cells. For this effect we have in English no name. The Germans call it *Keimschädigung*. We might call the condition gonadic injury or gonadic abiotrophy.

and what is commonly known as heredity. Certainly the stress that has heretofore been placed on this subject by Goddard, Davenport, Dugdale, and Estabrook would incline to the latter as the more important factor, though Davenport is fair enough to say that "indeed there is no conflict between environment and heredity; each is a factor in all behavior. Environment affords the stimulus; heredity determines largely the nature of the reacting substance; the reaction, or behavior, is the resultant or product of the two. The great mistake that social agencies have made in the past is that they have overlooked the constitutional or the heredity factor of the reaction." But he goes on to say that "the chief value of a detailed study of this sort lies in this: that it demonstrates again the importance of the fact of heredity." Why should he say that it demonstrates the importance of the fact of heredity more than it demonstrates the importance of the fact of environment? The present report would not go so far as to assume that environment is the cause, but the statistics given surely offer proof that environment is the chief cause in this particular group of families at least.

Nearly all the members of this group originated in Ireland, for the most part coming from the county of Galway. In this country they have seemingly become segregated in one district of the city—a district known for its poverty, shiftlessness, drunkenness, and general dependence upon the county. Some members of the group, if they have not come directly to Chicago from Ireland, come by way of St. Paul or Pittsburgh, to which places they occasionally return.

In a general view of the families, shiftlessness stands out prominently. In the stories to the United Charities the men say that they make money, but that the women don't know how to spend it, while the women complain of non-support and drunkenness. This is not altogether inconsistent with the fact that, so far as we have been able to gather, in Ireland these people belong to the small-farmer class, and here they are plunged into the narrow, crowded districts of lower city life, making their living, not in tilling the soil, but as untrained laborers, the first to be thrown out of work.

The result of all of these conditions is alcoholism, leading to loose morals, syphilis, feeble-mindedness, and, in a few instances, criminality. It is a noticeable fact that alcoholism is for a great part found among the women, who have apparently been led to this by their poverty, while in other cases the women are the supporters of the family. The cases of feeble-mindedness that appear are apparently sporadic, and if there is any predetermined character it is alcoholism, the result of the environment in which the people live.

FAMILY HISTORIES

In 1878 the father and mother of Family I came up before the United Charities seeking aid. They had before this time received aid from the United Charities, but were apparently self-supporting. The man, however, had fallen off a building and had broken his arm, and his wife was expecting confinement. They wanted money, coal, and provisions. The man seemed honest and sober, but the United Charities did not think that they would ever make wise use of money. There were four children:

The first child (I 1) married a laborer. Both were born in Ireland. In 1899 they appealed to the United Charities for aid. The family seemed to be in fair condition. The husband was tubercular. On a later application for aid he showed the effects of drinking. The children were dirty and half-clad and showed the effects of carelessness and the lack of proper food. The wife was found to be shiftless and a drunkard. There were seven children:

The first (I 1 A) was for a while the only support of her entire family. She made \$2.00 a week at housework, and on this her mother and father and the six younger children lived. After a time she married a laborer and started in on another harder struggle to live and keep sane.

I 1 B worked in a factory, but was compelled to give up on account of heart trouble. She finally married an Italian.

I 1 C was sent out by his mother to work as soon as possible; though old enough, he was unable to get work because he was so small. Later on, the family lived on his earnings. He died of bronchitis.

I 1 D and I 1 G (boys) were both normal.

I 1 E and I 1 F (boys) were both feeble-minded. When examined, their bodies were covered with eruptions as a result of vermin.

The second child of Family I (I 2) and his wife were both born in Ireland. She apparently belonged to respectable people, who were able to make a good living. In 1906 they applied to the United Charities for aid. The man was out of work. They were evidently clean people in good condition. The man had been working on a building and had fallen and had broken a rib. The woman looked like a "low" kind and appeared overworked and underfed. The entire family drank. In 1914 they all looked shiftless and dishonest and of a degenerate type. The man was advised to go to the Poor Farm, but refused. There were five children and one miscarriage:

The first child (I 2 A) was undetermined.

I 2 B was a wild, unmanageable girl. The United Charities suggested that she be taken before the Juvenile Court, but this was not done. In 1914 she died at the Polyclinic Hospital, after giving birth to an illegitimate child.

I 2 C was feeble-minded, having been judged to be from one to three years old mentally. She is now under institutional care.

I 2 D, a boy, died in infancy.

I 2 E, a miscarriage.

I 2 F (a girl) was apparently normal.

The third child of Family I (I 3) married twice. She and the first husband were both alcoholic. From this marriage there were two sets of twins; one of each set died. Of the other two, one was undetermined, and the other sexually delinquent. Her mother could not control her, and she was sent by the Juvenile Court to a home for delinquent girls. The second husband was normal, and both children of this union were normal.

The fourth child of Family I (I 4) was alcoholic. In 1909 his wife came to the United Charities saying he had broken his leg. Although she was pregnant, he let her go out to hunt for work while he spent his time drinking. There were four children, all undetermined.

The second related family in this group (Family II) was small.

II 1 was insane.

II 2 married a woman of the same family name (III 1). She was alcoholic and much given to carousals. Finally, after "giving her a beating," her husband left her. There were two children, both undetermined.

Of Family III, the first child (III 1) married II 2, referred to above.

III 2 was an inveterate drinker, often out of work. The four children were sickly from lack of proper nourishment.

III 3 was undetermined.

Family IV came here from St. Paul. They had five children:

IV 1 was the first husband of I 3. Both were alcoholic, as has already been stated, and one of the children was sexually delinquent.

The second child of Family IV (IV 2) married an alcoholic. There were a large number of children in the usual poverty.

IV 3 was alcoholic. He married V 5, a feeble-minded woman.

IV 4 and IV 5 (boys) were undetermined.

These children of Family IV were cousins of the children of Family II.

In Family V there were five children, all of whom were alcoholic and one feeble-minded.

The first child (V 1) married IV 2. He was a hard drinker. His lungs became affected, he gave up work, and the family lived on three dollars a week that the oldest daughter made. In 1902 he died from the effects of drinking.

V 2 was killed by falling down stairs when drunk.

V 3 was a suicide. There were six children, all undetermined.

V 4 and his wife were both alcoholic. Of their seven children:

V 4 A was sexually delinquent. Her twin sister (V 4 B) was feeble-minded. V 4 A's teacher in the public school said that she was pretty and intelligent, but lacked concentration, and her attendance was irregular. She spent part of her time with three Polish girls who were taken into the Juvenile Court, being found with an Italian.

V 4 C died in infancy.

V 4 D was a feeble-minded girl.

V₄ E was a normal girl.

V₄ F was undetermined.

V₄ G, a boy, was sick almost all of the time.

This family finally had to be helped when the husband deserted in ———. He came back, but had to be sent to the Bridewell, as he was both destructive and cruel at home. Though she signed his release, as soon as he was back he commenced beating his wife, saying that she was immoral. He finally developed delirium tremens. The children were continually being sent to the saloon for beer, sometimes as often as six times a day. They were also found begging from the commission houses. The landlord finally refused to let the family stay in the house.

The fifth child of Family V (V₅), a feeble-minded girl, married her cousin, IV₃, who was alcoholic. They had one child, sex undetermined.

In Family VI the father was a second cousin of the father of Family V. There were four children in Family VI, two of whom are dead, and the other two apparently normal.

The oldest child, VI₁, had six children, two of whom are normal, and the other four undetermined.

Of Family VII, the father was a cousin to the children of Family VI. He was tubercular, and four of the nine children were tubercular. The youngest child died at the age of one day. There were two miscarriages. The father was continually out of work and so was unable to care for the children, who were greatly neglected.

In Family IX, IX₁ and IX₂ were undetermined.

IX₃ and her husband were both alcoholic. They had nine children:

IX₃ A, IX₃ B, IX₃ E, and IX₃ H (all girls) were undetermined.

IX₃ C, IX₃ D, IX₃ F, and IX₃ G (all boys) were normal.

IX₃ I, a boy, and the youngest child, was a social delinquent.

IX₄, alcoholic, married an alcoholic woman. The sanitary conditions under which they lived were horrible. The wife was accused by her husband of being a poor manager. All of the eight children were extremely neglected, and the oldest girl, epileptic.

IX₅, a tubercular man, married X₂, an alcoholic woman. There were five children, the sex of three of which was undeter-

mined. Soon after the father had died of tuberculosis, the son (X₂ A) died of the same disease. Just before the father died, the United Charities discovered that four were sleeping in one bed. The mother seemed to have no conception of sanitary living. In 1914 the daughter (X₂ E) died of tuberculosis.

IX 6 and IX 7 were undetermined.

In Family X, X₂ was referred to above, having married IX 5.

X₃ was an alcoholic man. Of the ten children, X₃ H was feeble-minded, X₃ E was underdeveloped, and X₃ B known to be normal. The others were undetermined. After the death of the father in 1912, the older married girls took care of the younger children. X₃ B married a teamster. There was a continual fight with poverty, and the children were underfed, the oldest boy feeble-minded.

X₄ was undetermined.

X₁ married a sister of the wife of X₃. She could neither read nor write and was extremely shiftless. The children were much neglected. The second child (X₁ B) was tubercular, and the eighth child (X₁ G), feeble-minded. The others were undetermined.

Now, what does this chart mean and what do these family histories show? Goddard traced out very much in detail the lineage of the Kallikak family and derived from it conclusively, as he thought, the fact that feeble-mindedness is inherited, irrespective of other factors. It was a Nemesis from which there was no escape. Yet time after time he cites cases of alcoholism and of syphilis which must of necessity have had a very determining influence on the physical well-being of the child. He objects to any conclusion being drawn from Dugdale's work on the Jukes, because here there is only one side of the question in evidence. What he thinks is necessary is that there be two different strains, yet so connected that any inference drawn must be from the difference, as was done in his *Kallikak Family*. Dugdale does at least give us examples of those who, placed in better environment, have improved on their ancestors.

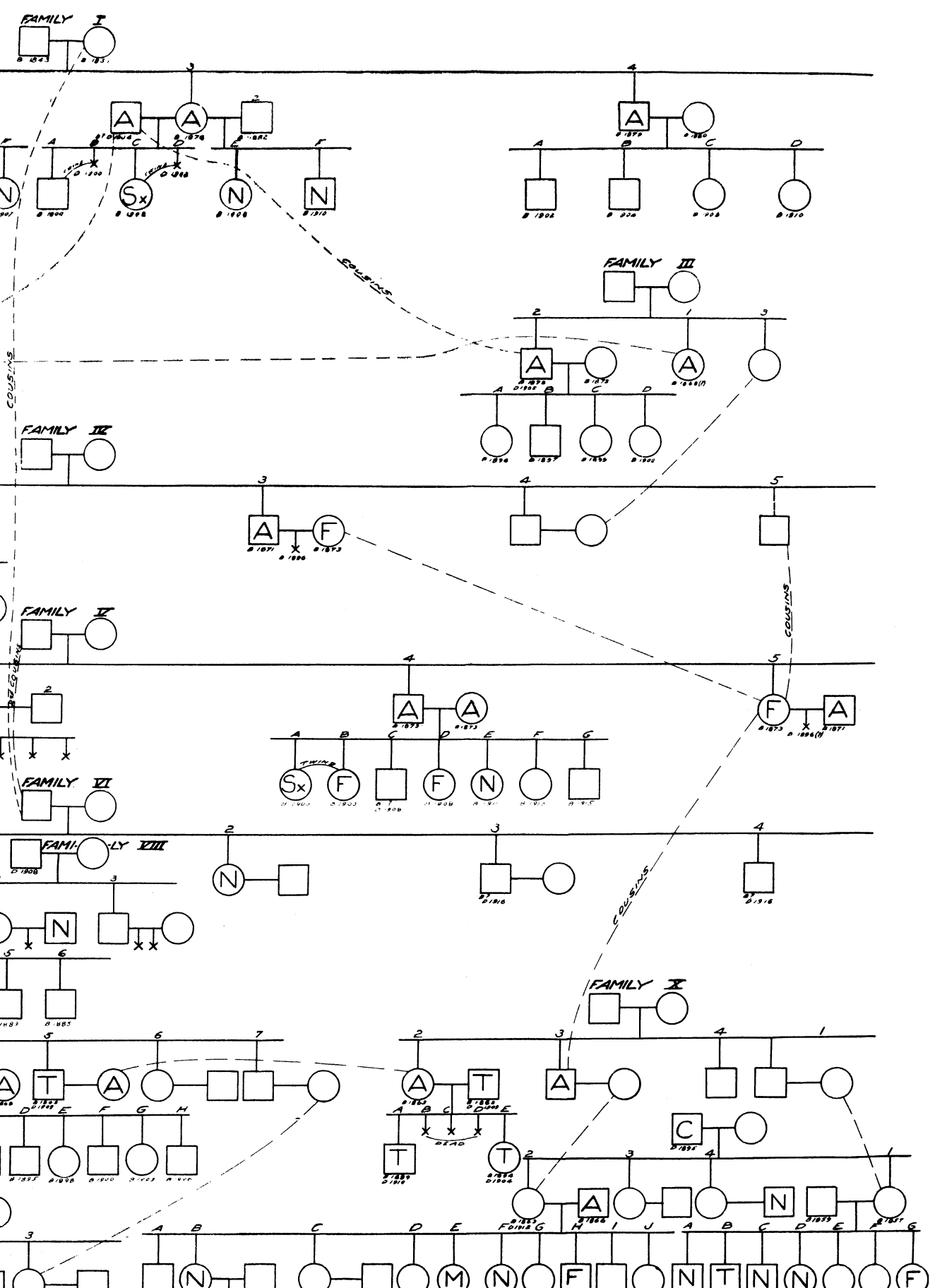
The chart shows a few more hopeful signs in the treatment of these people, for it demonstrates that certain causes are removable. With the exception of two families, all were alcoholic. In all cases

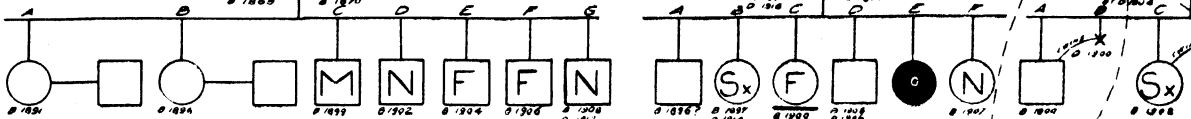
where both parents were alcoholic there always resulted one or two offspring who were feeble-minded or sexually delinquent. Besides these cases of the direct influence of alcoholism, no doubt the instances of insanity, suicide, tuberculosis, petty crime, epilepsy, and malnutrition are attributable to the same cause, either directly or indirectly. With the exception of one case, all the families show a laxity in maintaining themselves in a way demanded by society. In some cases this is a matter of utter incapacity; in others, of pure perverseness. The men of the families seem unable to find and to keep a job; the women are shiftless, dirty, and untruthful; the children, uncared for. This whole investigation, then, tends to bring out the lack of training on the part of these people. More equal opportunities of education would doubtless tend to make them better members of the community and at least self-supporting.

The conditions of life under which these alcoholics live increase the retardedness of the children and their underfed condition. Money that should be spent for food and clothing is spent in revelry and drunkenness. A drunken father comes home and so frightens his family that they lock themselves away from him. He destroys all the furniture and throws away the clothing. The children cannot go to school, and they are put down as "retarded." They lose interest and finally start on their own questionable careers. Sexual delinquency under such conditions becomes inevitable. What place have high ideals in such a community? Where is shown the good of striving against natural tendencies? Such ideals do not and cannot exist.

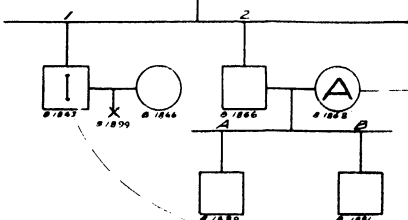
In no one case can it be proved from the chart that the feeble-mindedness shown can be traced to an antecedent case of the same kind, but in every instance the taint of alcoholism has appeared. There is shown an example of a tubercular father followed by tubercular children in the proportion laid down by the Mendelian law, upon which Goddard lays so much stress. More exactly is there shown the fact that alcoholic parents are invariably followed by some feeble-minded offspring in the strict sense of the word and by others who are unfit to push ahead in the world.

The weaknesses produced by the alcoholism were intensified where consanguinity entered into the question. This influence is

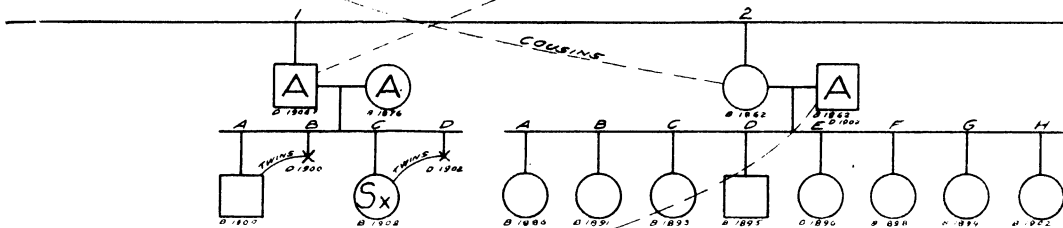




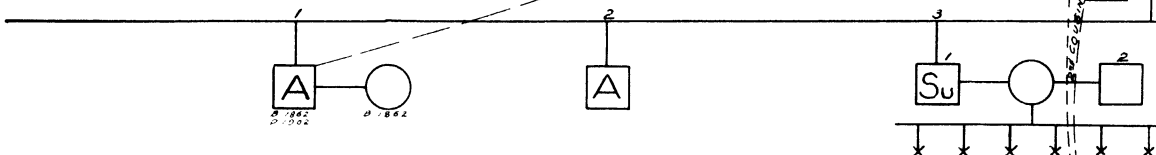
FAMILY II



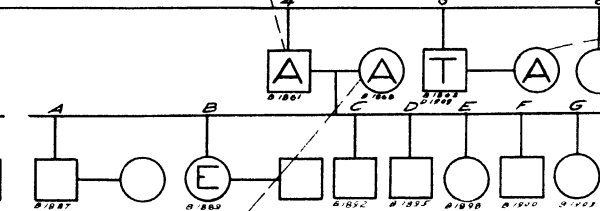
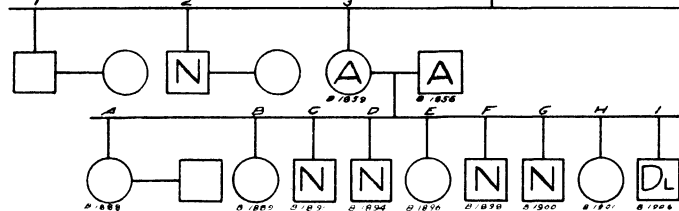
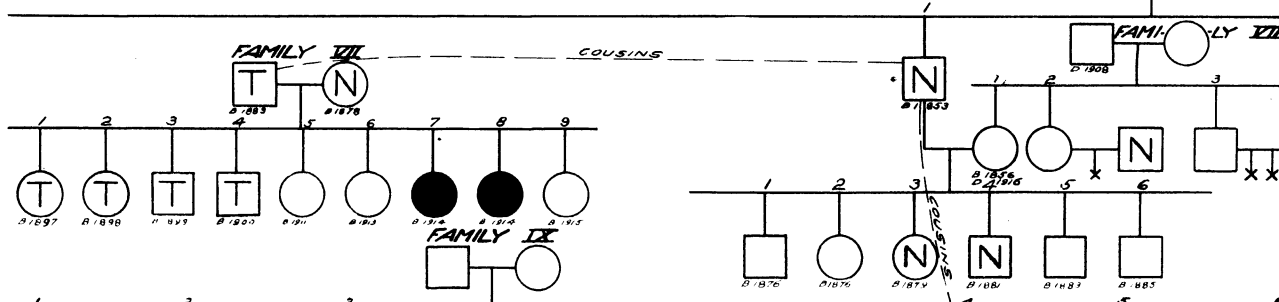
FAMILY III



FAMILY IV



FAMILY V

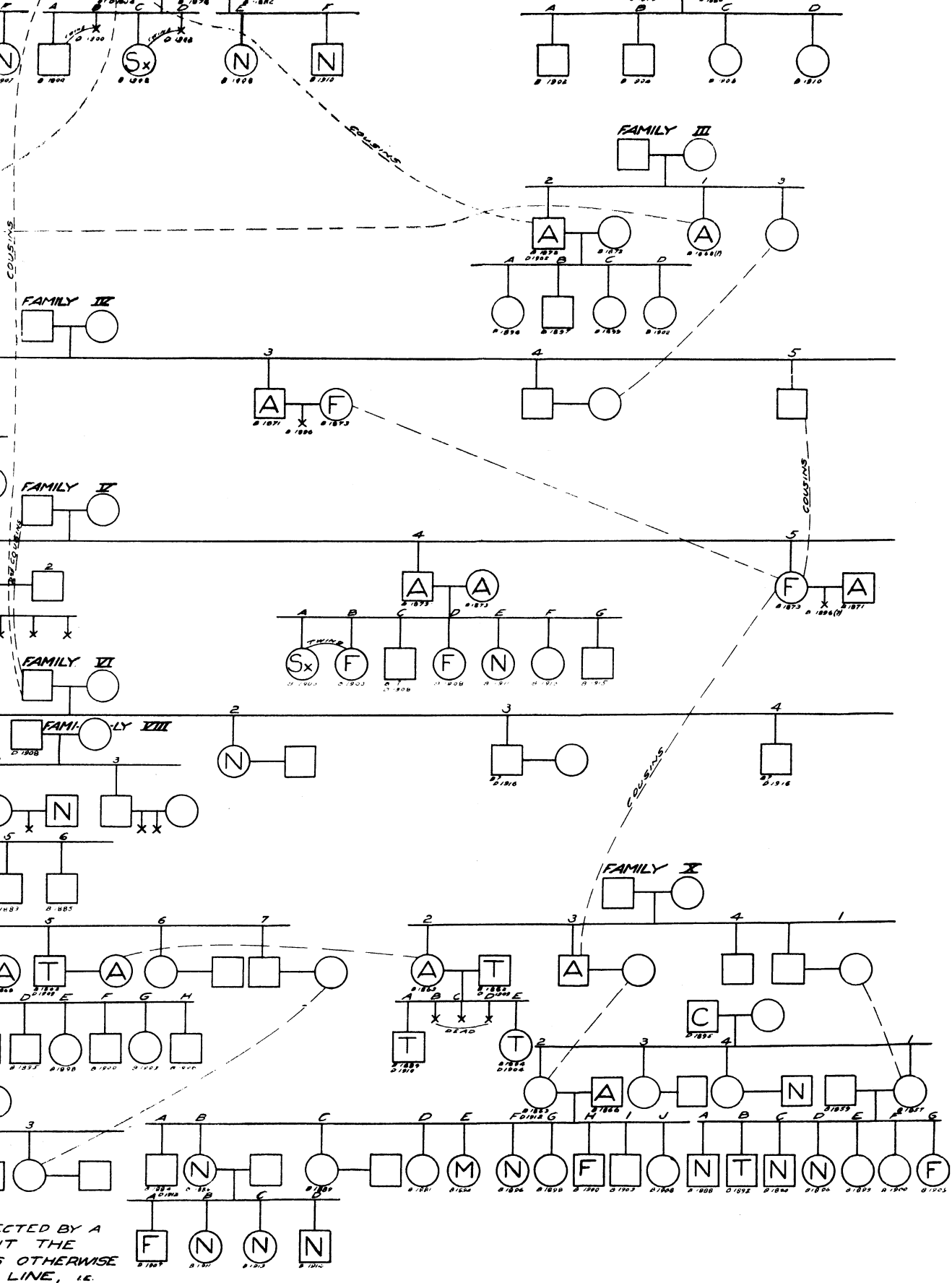


THE "NOLLY" FAMILY

- FEMALE
- MALE
- ◻ MARRIED
- MISCARRIAGE
- INSTITUTIONAL CASE
- × SEX UNKNOWN
- A=ALCOHOLIC

- C = CANCER
- DL = DELINQUENT
- E = EPILEPTIC
- F = FEEBLE MINDED
- I = INSANE
- M = MALNUTRITION
- N = NORMAL
- Su = SUICIDE
- Sx = SEXUALLY IMMORAL

T = TUBERCULAR
 ANY TWO SYMBOLS CONNECTED BY A DOTTED LINE REPRESENT THE SAME INDIVIDUAL UNLESS OTHERWISE DESIGNATED ALONG THE LINE, I.E. "COUSINS", ETC. —



noticeable when the question is one of sexual immorality. Yet, had these cases been taken out of their surroundings there is no particular reason for inferring that the predisposing sexual delinquencies could not have been overcome by a certain amount of social pressure. In the cases of feeble-mindedness resulting, as in every instance shown, from alcoholic parents, the germ plasm concerned could not have remained unimpaired.

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